December, 1956

Volume 33, No. 12

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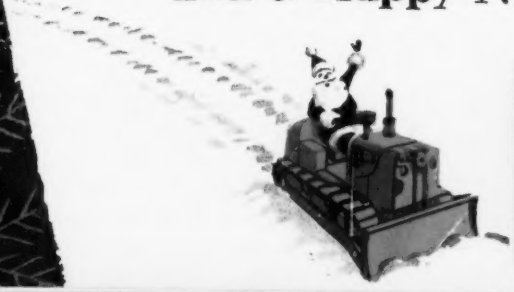
COAL MINING

MERRY CHRISTMAS

and a Happy New Year



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● The self-propelled unit permits speedy, economical blast-hole drilling from hole to hole. It takes just a few seconds to disengage the power unit from the auger drive shaft, change position, and begin drilling again. The unit is easily attached to the McCarthy truck-mounted earth and rock boring drills now in use.

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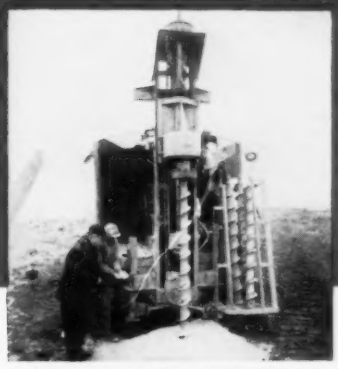
● Truck-mounted horizontal drills are highly versatile. The drilling unit mounts lengthwise or crosswise on the truck bed for spotting hole locations faster. Drilling height from the ground ranges from 4½ to 7 ft. Four separately operated levelling jacks permit close alignment. Write for Bulletin M-105.



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Model 106-74—World's Fastest Heavy-Duty Vertical Auger Drill

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NOT 1...NOT 2...BUT 3 CATERPILLAR® D9 TRACTORS

Caterpillar D9 Tractor equipped with No. 9S Bulldozer removes overburden for A. W. Lotze near Enon Valley, Pa.

ABILITY TO GET JOB DONE AT LOWEST COST REASON FOR REPEAT PURCHASES...

A. W. "Augie" Lotze, owner of A. W. Lotze Contracting Co., says, "My 20 years' experience in coal operations have proved to me Caterpillar equipment has the ability to get the job done at lowest cost. There's less down-time and more good profit-producing work in Caterpillar-built tractors. The Cat D9 bulldozer is a real coal stripping machine and I've just bought my third D9 because of the high work output of the first two units."

The Caterpillar D9 Diesel Tractors purchased by the A. W. Lotze Contracting Co. have been working at A. W. Lotze Mine #2 in Lawrence County, Pa. There is approximately 55' of overburden consisting of clay and sand. The Cat D9's operate nine hours a day, seven days a week in opening cuts, benching for dragline and dozing overburden. Operators particularly like the hydraulically boosted steering and brakes, superior visibility and smooth "live shaft" drive for cable controls. They claim the D9 is as easy to handle as most smaller tractors.

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Over 50 Caterpillar D9 Diesel Tractors have been delivered to coal strippers in Western Pennsylvania since this model was introduced a year ago. Repeat purchases of D9 tractors by the same owners is one of the best testimonials to its ability to "get the job done at lowest cost." If you want to speed your stripping operations . . . cut "down-time" . . . increase production and profits . . . investigate the Caterpillar Diesel D9 tractor. We'll be glad to prove its value to you—either on paper or actually on your job.

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Allis-Chalmers HD-21 dozes hard sandstone at the Peerless Mine of *Coal River Mining Co.*, Hookersville, W. Va.

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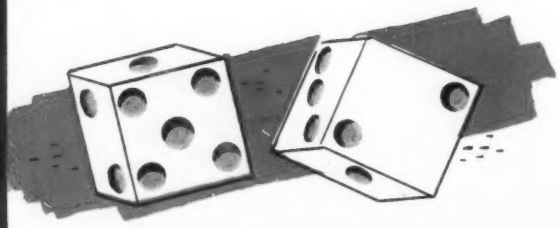
...seven letters that spell the finest in equipment



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COAL MINING

Volume XXXIII December, 1956 No. 12

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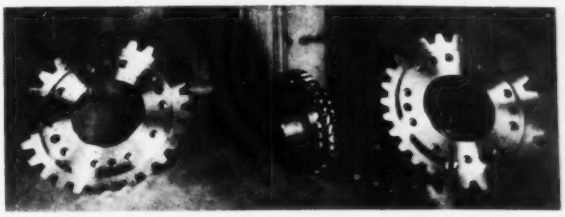

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A new rock body, designed to withstand the severe impact shocks imposed by power shovel, chute and conveyor loading of ore, rock and other abrasive materials, is announced by Galion Allsteel Body Company, Galion, Ohio.

Offered in 6 to 15 cu. yd. capacities, the new bodies feature ¼ in. steel construction in sides, floor and head. A ¼ in. wear plate over a 2 in. hardwood cushion protects the body floor while a 4 x 4 x ½ in. reinforced top roll minimizes shovel and loading damage to body sides. For especially severe service, $\frac{5}{16}$ or ⅜ in. body shells and wear plates are available. Horizontal and vertical box braces extending up under the top roll bolster side strength and prevent bulging, the most common cause of rock body failure, the manufacturer says.

Box-type crossmembers and longitudinals distribute loading and dumping stresses uniformly throughout the body structure, it is claimed. Longitudinals are extended up under the scow end for added strength.

A 15° 24 in. scow end eliminates the need for a tailgate. Scow length and slope are engineered to assure firm packing of loads in transit plus fast, clean dumping. Body sides slope into the floor at a 45° angle to prevent lodging of material in floor corners. An optional heated floor is available for use where unusually sticky loads are encountered.

According to the manufacturer, a choice of heavily-reinforced half, full or load-carrying cab shields is available.

Galion rock bodies are designed for mounting on Models 880 or 1000 underbody and Model 77379 telescopic hoists. Capacities range from 15 to 25 tons.

For further information, contact local Galion Allsteel distributors or write direct to Galion Allsteel Body Company, Galion, Ohio. Ask for catalog K-122.

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Drills holes faster – Will not snap off shank or chip points – Outlasts four or five ordinary augers
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Do You Know?

A way by which a person can safely give blood plasma almost every week, or as often as 50 times a year, was announced by Drs. Joseph Smalens and Joseph Stokes, Jr., of Philadelphia at the meeting here of the International Society of Blood Transfusion and the American Association of Blood Banks.

The method is called plasmapheresis. Its importance lies in the fact that through it large quantities of plasma safe from the virus of hepatitis, or jaundice, and from bacteria can be accumulated and stockpiled for use in case of mass disasters and war.

A pint of blood is taken from the donor at each weekly bleeding. A little less than half a pint, 200 cubic centimeters, of plasma is kept. The red blood cells from the pint of blood are immediately returned to the donor. This is done by use of the ADL Cohn Blood Fractionator which does a continuous job of separating the red cells from the plasma with immediate return of the red cells to the donor.

Transfusions of plasma, useful for fighting shock, have been stopped since discovery some years ago that the virus causing hepatitis, or jaundice, was being transmitted by pooled plasma.

By carefully selecting the donor, to make as sure as possible that his blood does not contain the hepatitis virus, and by keeping each plasma donation in its own easily stacked, non-breakable and non-porous plastic bag in which it is collected, the virus danger can to some extent be prevented. For further safety, the plasma in its plastic bag can be left at any desired temperature to inactivate the virus. Aging of the plasma through storage should also cut down the hepatitis danger to well below that of whole blood.

Plasmapheresis, the Philadelphia doctors reported, has been carried out successfully 25 times on each of 23 donors in a period of one year. They say it could be done as often as 50 times a year. Three plasmapheresis donations can be obtained in one hour, making the method practicable.

Extensive tests have shown its safety.

Both natural and synthetic fabrics can now be made water-repellent so they will not be spotted by rain, weakened or shrunk by washing in water or lose their shape on exposure to high relative humidities.

The invention that makes this possible earned patent No. 2,769,732 for its inventor, Thomas Boyd of Springfield, Mass.

Water-repellency is attained on fabrics by depositing polymers and copolymers of titanium organic derivities or copolymers of the titanium organic derivities with silicon organic derivatives on natural and synthetic fabrics.

Mr. Boyd lists several examples of tests on cotton muslin, woolen flannel, linen, nylon and cellulose acetate rayon. A strip of wool flannel, for example dipped in a one percent solution of a polymeric stearyl orthotitanate in anhydrous solvent naptha, held its water-repellency after repeated launderings and dry cleanings. Mr. Boyd assigned the patent rights to the Monsanto Chemical Company of St. Louis, Mo.

Here and There in the Coal Industry

The Pocahontas Industrial Council for Education has been formed by industry leaders in the Bluefield, W. Va., area to attract more young men and women into the engineering and technical fields. It is the Council's aim to aid prospective engineers to enter the profession and to keep a flow of engineering graduates available to area industries. William Fullarton, special assistant to the president of the Pocahontas Fuel Co., Inc., heads the Council and serves as chairman of the Steering Committee. Other committees in the group and their chairmen are: school curricula, guidance and teacher problems, Filmore McPherson of the Appalachian Electric Power Co., Bluefield; science affairs, James McCoy of the First National Bank of Bluefield; engineering speakers bureau and advisory committee, James Compton of the Southeast Chapter of the Professional Engineers; vocational schools, R. J. Cousins of the Norfolk and Western Railway; and public relations, Eddie Steele of the Bluefield Supply Co.

The Council is backed by railroads serving the area, the coal industry, electric utilities, wholesale distributors, manufacturers, schools, banks, and universities. It will serve Mercer, McDowell, and Wyoming Counties in Wes Virginia, and Bland and Tazewell Counties in Virginia. Science fairs will be sponsored by the Council in each county and all high school students have been invited to present projects. Speakers are appearing at the schools and brochures are being printed for distribution throughout the county school systems to stimulate interest in the engineering profession.

The Mineral Producers Association of Kittanning and the Independent Coal Producers Association of Butler have been merged. From such a merger it is expected that a stronger, more representative, INDEPENDENT MINERAL PRODUCERS ASSOCIATION will result.

The officers of this association are: President, William C. Altvater; Vice President, William L. Harger; Executive Vice President, F. H. Mohney and Secretary-Treasurer, J. P. MacFarlane.

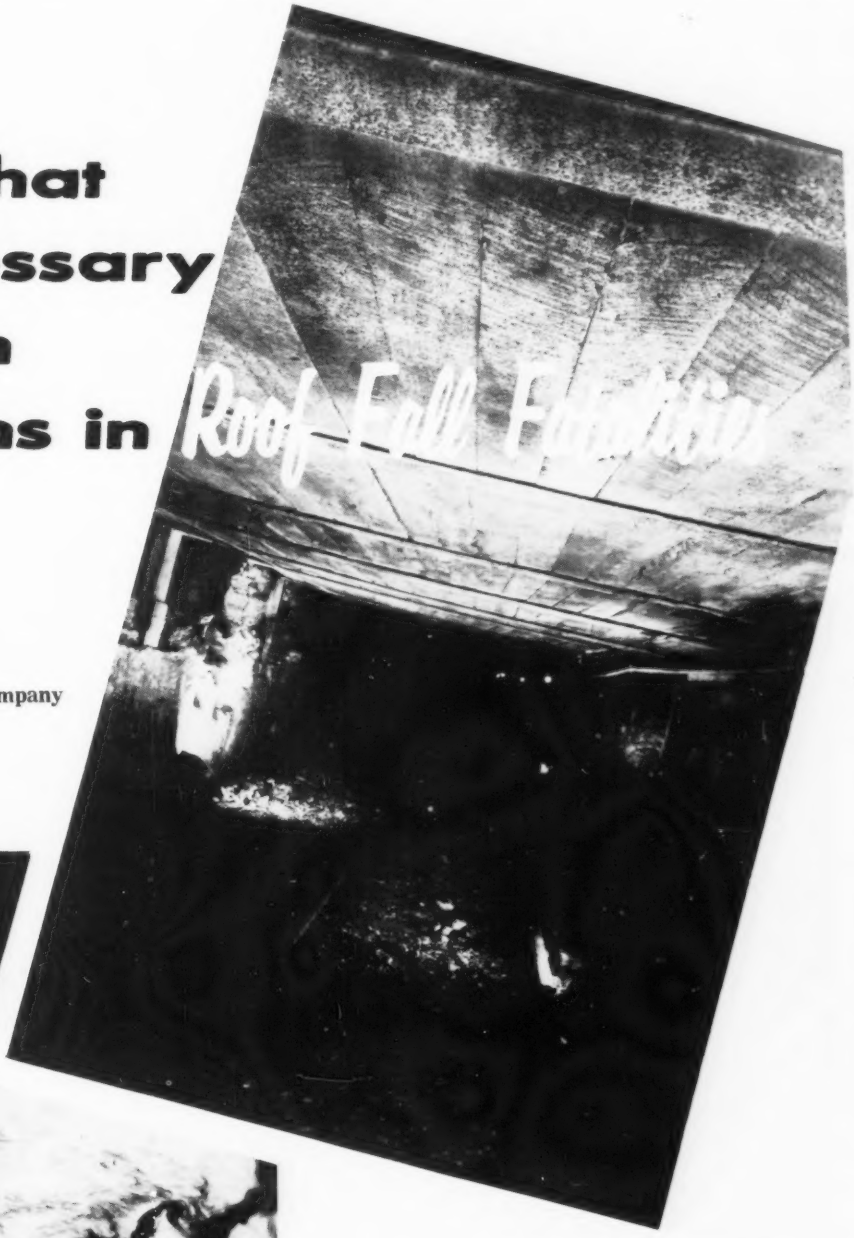
The offices of the Mineral Producers Association in Kittanning have been closed and in the future all business of the Independent Mineral Producers Association will be conducted from the following address: Independent Mineral Producers Association, 203 Mellon Bank Building, Butler, Pennsylvania, Telephone 7-4036.

Midwest Coal Producers Institute, Inc., Organized and held its first coal conference Nov. 15-16 at French Lick, Ind., with nearly 100 members in attendance. A freight rate panel discussion moderated by James H. Obear of The Enos Coal Mining Co., featured the session and included the following traffic managers: Chas. W. Stadell, Illinois Coal Traffic Bureau; Walter Pedigo, Kentucky Coal Agency, Inc.; Harold V. Scott, Northern Indiana Coal Traffic Association; Homer Paul, Indiana Coal Association, and A. J. Christiansen, Northern Illinois Coal Trade Association and Secretary of the MCPI.

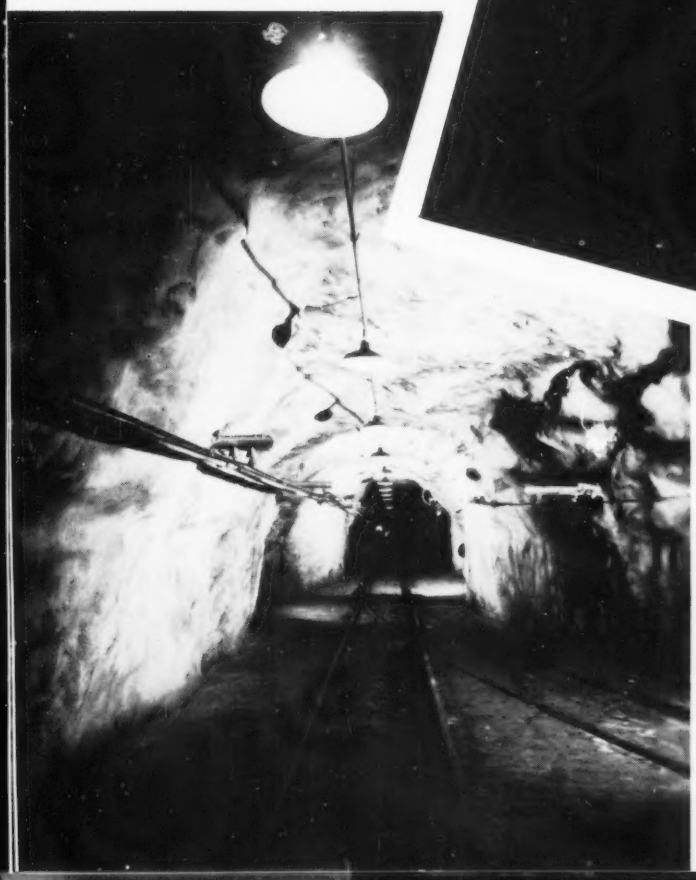
R. E. L. Hall, NCA's general counsel, and Carroll F. Hardy, Managing director of BCI, also were on the program. Hall discussed NCA's participation in the various natural gas cases before Government agencies and Hardy reported on progress of BCI's new service program. Robert T. Laing, executive director of The Central Pennsylvania Coal Producers' Association, was guest speaker at the Thursday banquet, discussing "Wealth in Abundance" and Mark B. Covell, of Union Electric Co., St. Louis, Mo., talked at the Friday morning session on "Utilities Look to Coal."

Actions that are necessary to obtain reductions in Roof Fall Frequency

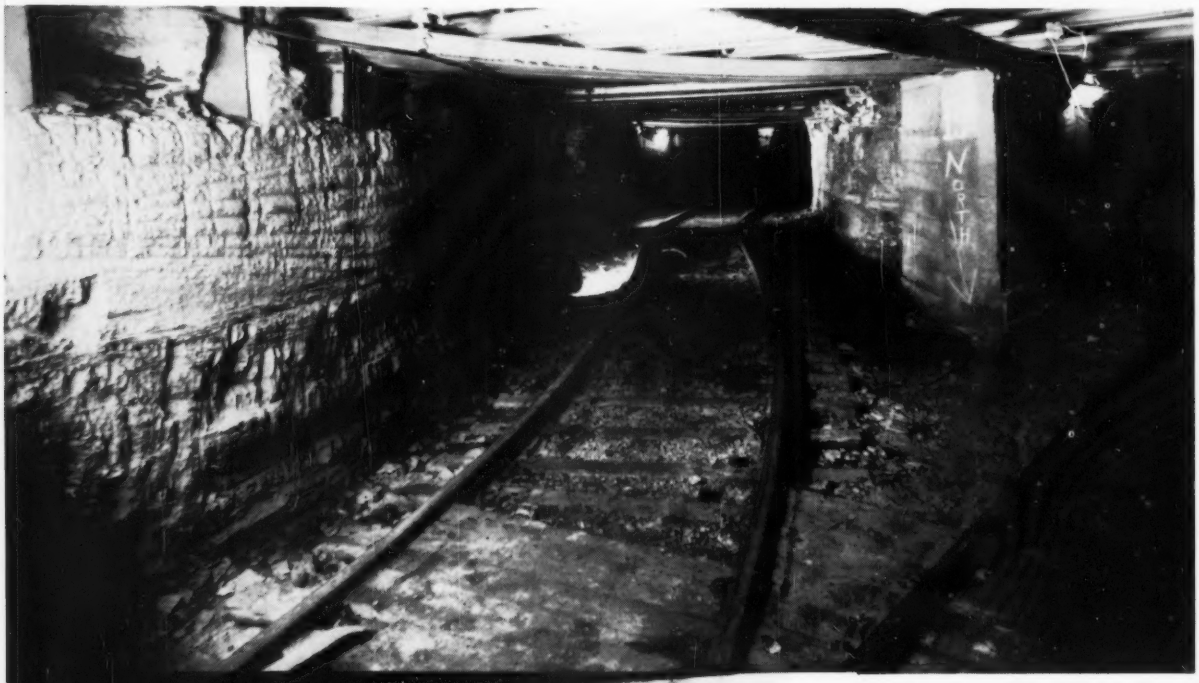
JAMES D. REILLY
Vice President
Hanna Coal Division
Cadiz, Ohio
Pittsburgh Consolidation Coal Company



Creosoted plank in bad spalling haulroad.



Heavy guniting was applied to entries at shaft bottom.



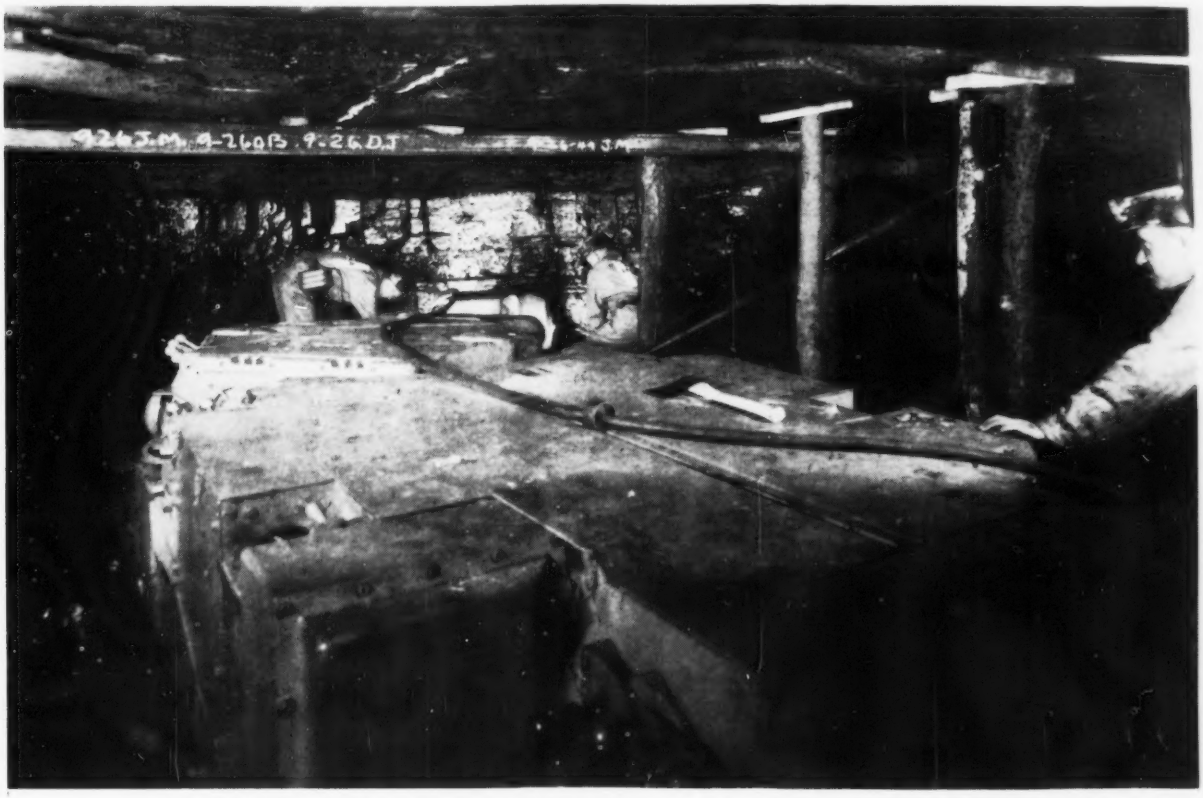
Heavy rail roof support at haulroad interesection.

Heavy rail holds roof in bad spots on section entries.

Where coal mine accidents are being considered, the problem of roof fall fatalities has been very prominent for many years. Roof fall fatalities have "stuck out like a sore thumb" because they have for many years led the list due to their high frequency of occurrence.

During the year 1955 some concerted attention was given to this type of accident through a national campaign on roof fall accidents. Unfortunately, this campaign fell far short of the results hoped for inasmuch as little, if any, improvement was realized in this accident category.

I should like to add, however, that on a frequency basis the years 1954 and 1955 were approximately even. One basic difference between the two was that the year 1954 was a "de-



Heavy rail holding roof up to head of cutting machine.

pression" year in the coal business while the year 1955 found us in a process of expansion—new mines were being opened, mines that had been closed previously were being reopened and new crews were being trained to mine the coal. While this fact can be accepted as a partial alibi, I wonder what our record would have been without this accident prevention campaign.

I personally was very happy that a concerted effort was attempted to reduce roof fall accidents and was sorry that the effort was apparently given up after the one-year period because it is my opinion that the reduction of any type of accident cannot be accomplished overnight, but is a gradual and sometimes extended process.

I believe this is true particularly because we are dealing with people and a great part of any accident reduction program must be realized through changing the thinking, the work habits and sometimes the whole psychology of a group of men. I am glad to learn that the campaign to reduce roof fall accidents is likely to be re-activated and I feel sure that with its guidance and with the cooperation of all interested people, much progress can be made.

I also believe that various other agencies who have either general safety sub-committees or sub-committees dedicated to roof fall accidents in particular, can be of much help both locally and nationally in helping the desire to conquer the roof fall accident problem. I refer to such agencies as National Safety Council, Mine Inspectors' Institutes, the various coal producers' associations, local organizations of Safety

Heavy rail and heavy plant roof supports over loading machine.

Directors, Joseph Holmes' chapters, etc. We should remember that these organizations include some of the most competent men in the industry, and if anyone can spearhead a safety program, certainly such people are the ones who must do it.

This is no mystery about accidents or accident prevention. We know why most accidents happen and we know how to prevent many of them from happening. I say this because we, as an industry, have done a commendable job over the years in reducing our accident frequency rates. We have done this despite the fact that we have been going through a great evolution in the coal industry —we have done it in a period when we were constantly increasing the mechanization of our industry, when we were of necessity increasing efficiency, and during periods when our labor force was being disrupted due to the calling into military service of many of our trained men. The fact that with all these conditions we have made a substantial reduction in accident occurance indicates to me that we can further substantially improve our present accident rates.

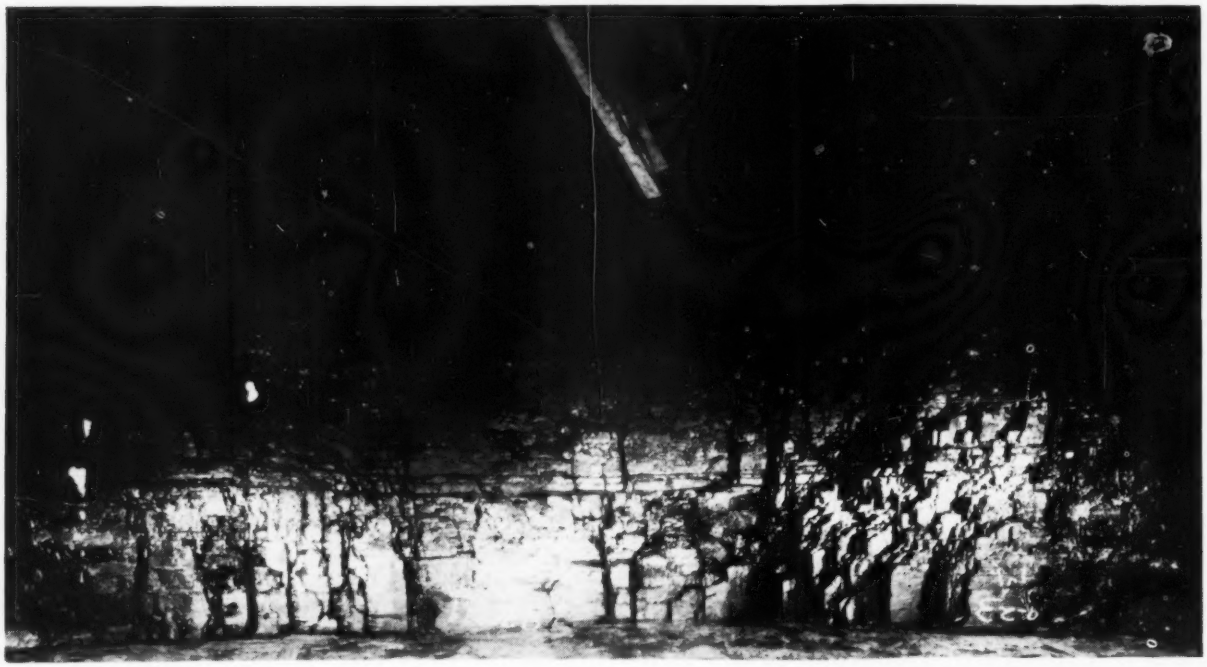
I would like to make one comment at this point and that is that in the course of this paper I shall refer to accidents and not to fatalities, even though the subject given me applies by its wording to fatalities. I believe that if our thinking in accident prevention is confined to fatal injuries or serious injuries we shall be led astray and will not accomplish what is necessary in reducing these serious accidents and fatalities.

The job we have to do in prevention of fatalities is first of all to prevent inquries. The non-serious injury in many cases, had one condition been altered or had a different lapse of time ensued, might very well have been a fatal injury rather than a scratch. I think this is one philosophy which we must adopt and that is that our problem is the prevention of injury. By and large, if we can prevent a large percentage of injuries from happening, we will automatically reduce the number of serious and fatal injuries. It is for this reason that my reference in this talk are to injuries rather than fatalities.

And now to the specific subject—the problem of roof control is doubtless one of the trickiest that our industry has to contend with. In no two mines, nor in many cases even in different sections of a single mine, are roof conditions identical. This means, of course, that no one set standard or procedure for roof fall prevention can be adopted for the mining industry as a whole, nor as a matter of fact, can one standard or procedure necessarily apply to all areas of a given mine.

The problem of proper roof control is a more serious one even than the problem of prevention of explosions or fires. We can, for example, determine the amount of gas being liberated in a mine and we can set exact standards of how much air is required to dilute, render harmless and carry away such gas. Exact determination can be made as to the explosibility of coal dust and exact standards can be determined and put into practice whereby the explosibility of this coal dust can be overcome through application of rock dust and other preventative measures. It would be trite to mention that we all know how to prevent fires from occuring. However, the matter of roof control is a problem not so easily measured and is a problem which cannot be conquered merely by the setting up of a cut and dried formula, but is one in which considerable study and judgment must constantly be exercised if a good job is to be realized. This is one of the many reasons why we in the industry need

Heavy rail support of roof of loaded out area.



such a high caliber of well-trained management and workmen in our industry.

In dealing with the problem of roof support, we are dealing with one of nature's inexorable laws—the law of gravity, and it is an elementary rule of roof support that our problems is to overcome the operation of this law through adequate support of the overlying strata. In order for us to make any progress in roof control, we certainly must commit ourselves as an industry to spend whatever time and money are required to work out and effectuate the use of sufficient materials to do this job effectively. While it has been said many times before, it certainly deserves repeating and that is that we must establish for each of our mines a minimum standard of roof support, which will be adhered to in every case without deviation, and we must be willing and we must be alert enough to supplement this standard whenever roof conditions worsen. We must always recognize that much of the success of an adequate roof support program depends upon prompt support as soon as the coal has been removed to prevent subsidence and breaks in the overlying strata as well as to protect workmen who must be near the face prior to the installation of permanent roof support. We must remember that the largest part of our injuries from roof falls occur in this area and we must be willing to set up and enforce adequate temporary protection at the working face.

The setting of roof support standards is all very good and is necessary. The setting of standards without their being put in practice and enforced 100 per cent of the time is quite another matter. It is this part of the situation which presents our greatest problem because this is the one in which we must depend upon human beings both in our mine management and in our workmen. In this respect, the prevention of roof fall accidents is the same as the prevention of any kind of accident and that is it is the man who works in the mine and his foreman who must be depended upon to prevent roof fall accidents. In order to accomplish this part of the problem, we established the following procedure:

First, we appointed a Safety Director with the required number of Safety Engineers that would be necessary to cover all parts of our underground and surface operations. The Safety Engineers reported directly to the Safety Director, and in turn, the Safety Director to the Vice President. In formulating the pattern that would be followed by the Safety Department we recognized the fact, as I am sure far-seeing managements do, that keeping their mines in first-class condition from a safety standpoint is, in addition to providing for the safety of their employees, good business sense for protection of the investments and long-term efficiency of operation. We further recognized that if we expected our employees to get behind a safety program, our managers and leaders must be in a moral position to sincerely earn the cooperation and safety-mindedness of the men who work in our mines. This, in my firm opinion, is the crux of any successful safety program.

It was our thought in setting up our present Safety Department that it should be a staff department and separate from the managements at each mine. Under this set-up, the Safety Department gives service to each mine management in making inspections, helping in safety training work. working with State and Federal inspection departments, handling first-aid and mine rescue training, etc. We have found that this type of a set-up works very well and permits top management to exercise control when necessary in matters to safety. At the same time where mutual confidence exists between the line organization and the Safety Department, we have found that the conflicts between the two are almost non-existent and a very fine spirit of teamwork exists in attaining their mutual goals of increased safety. When coal mine management utterly commits itself to a desire to reduce accidents, it will not look upon a Safety Department as being spies for top management or as interfering with the mine operations, but on the other hand, will welcome such a department as an ally in helping to prevent accidents.

It is comparatively easy for a Safety Department to work with a mine management who knows that they will not receive criticism from top management for expenditures made to further the safety of their mine, but will receive commendation for every advance they make in safety.

Coal mine accidents occur in coal mines. Prevention of coal mine accidents must therefore be carried out in coal mines. Accidents cannot be prevented wholly in the offices of top management, nor of a safety director nor of a superintendent. Mine accidents must be prevented at the face! Accidents occur for one of the following reasons: (1) Mine management has been negligent in the maintenance of its mine safety-wise; (2) Improper and/or inadequate supervision; (3) The workman has not been properly trained as to how to do his work safely; and (4) The workman becomes careless in his work habits.

We recognize that roof conditions in different mines and states vary to such a degree that anyone who would attempt to give the answer on roof control problems would certainly be the supreme egotist.

I shall try to give you the methods we use that have been very effective in what I would consider as tender a roof condition as you will encounter anywhere in the United States: First, an adequate support program with roof bolting where it is feasible; steel cross bar timbering flush with the face where it is feasible, and in some cases, a combination of steel cross bars and roof bolting; Second, adequate safety posting as the exposed face is loaded out beyond the roof support, which in many cases necessitates some shovel work that is very costly from a productivity standpoint; and Third, hitching of timber into the ribs where cross barring is necessary in entries to prevent roof falls from derailments, etc.; and Fourth, a tremendous amount of educational work in the proper use of

safety posts where timber jobs are failing and the area must be re-timbered.

At one time our loss of life in this particular phase of roof control was exceedingly bad. In each case, the accident report read, "This timberman killed in the line of duty attempting to make safe a timber job that was failing," and in each case, these men had definitely set safety posts. Some of the timber crews had, collectively, as much as 70 to 80 years of experience in this dangerous type of work. In most cases, they had never been told that when they put up the first cross bar in reinforcing one of these jobs that they would shift the weight, which in turn would most generaly trip out the entire job, causing a loss of life. This required an extensive period of teaching them to trip the timber job completely by mechanical means or analyzing whether or not the temporary support was adequate to take care of the shifting weight as the first and second reinforcing bars were put up. I know many of you will wonder why it is necessary to have jobs of this kind but I believe the answer is self-explanatory to those of us who have experienced the necessity of re-timbering mines from 30 to 50 years of age.

Let us assume that management has done all it can to eliminate accident hazards caused by dangerous physical conditions in its mine. We believe then its next important consideration is the quality of its supervision. As a general rule, workmen are as safety-minded as their foremen. Management's job thus becomes first of all one of inspiring its foremen to good safety leadership. We are firmly convinced that this takes the same caliber of an individual as it takes to consistently get a good production record. Fortunately, I believe the coal industry is emerging from the days when a foreman "bossed his men" to the day when the foreman gets his results through intelligent leadership. We believe that workmen generally respond in a favorable manner to the proper psychological stimuli. We believe that if the workmen have a wholesome respect for the men who are their leaders, there is no reasonable goal in safety or production which they cannot attain. We feel that coal miners react no differently psychologically than any other human being, and unless coal mine management rerognizes this basic principle of human behavior, they will have little hope of any advance safety-wise.

The need for quality foremanship manifests itself in the next essential for a safety program, which we mentioned above, and that is training the men in safe work habits. Men, over a period of years, form certain ways in which they perform their particular jobs. When top management gets down to the "grass roots" of a safety program, it often finds that many of these work habits are not good ones. It then becomes the foreman's task to "untrain" the workman in these bad habits and to train him in new habits. It is in doing this that the foreman's ability as a leader is sorely put to the test. It is then that he will need all of the respect and friendship of the workman he can get. It is not human for anv of us to like to have our faults pointed out to us, and, unless this job is done very tactfully, we hold undying resentment against the person who is so bold as to be critical of us.

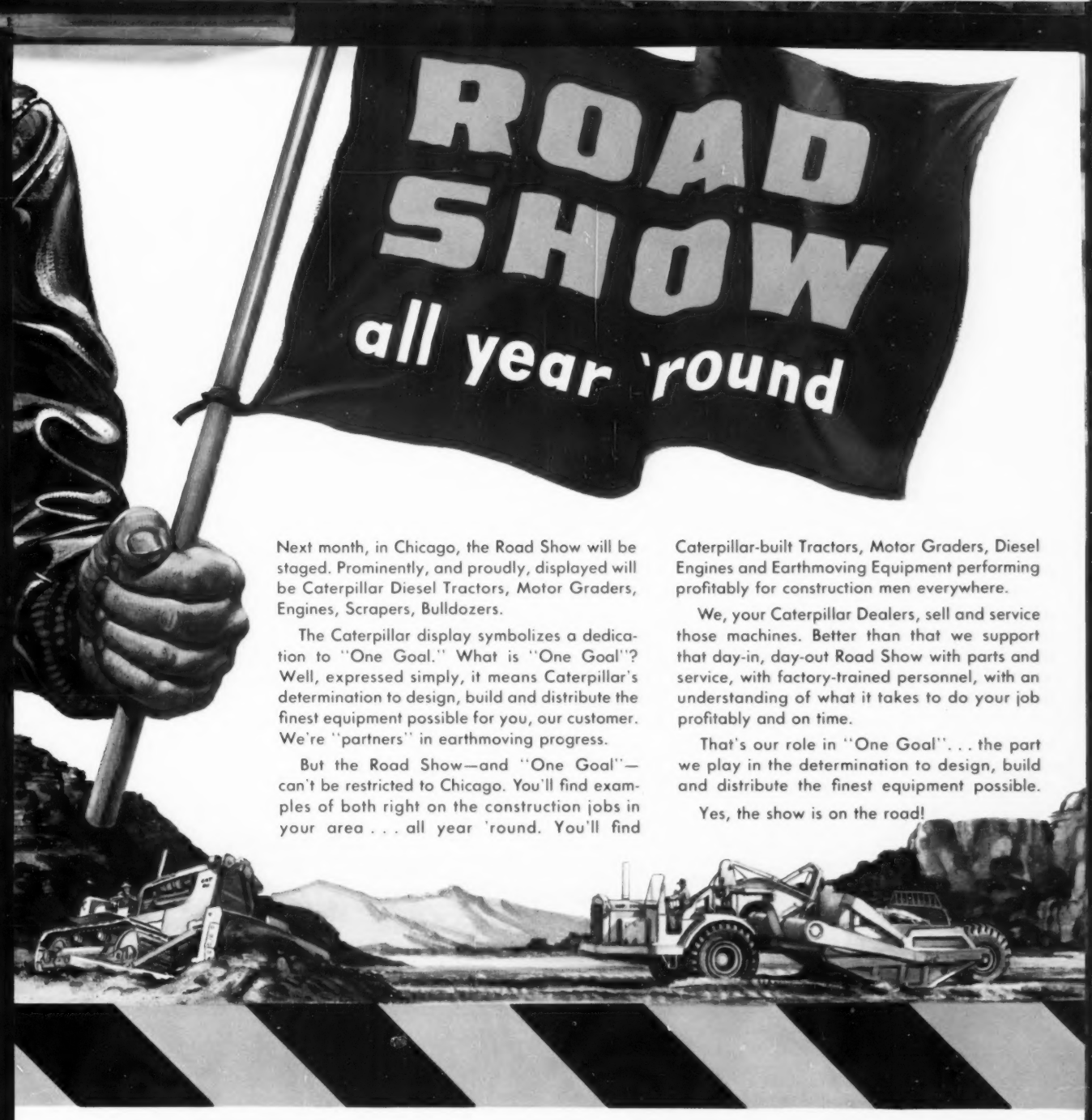
What I have just said certainly puts a large burden for an adequate safety program upon the shoulders of the foreman. But there, gentlemen, is where a safety program will either stand or fall. If we do not have right thinking and proper action at this level, we shall never get it at any other level. If we are to expect such results from our foremen, we shall have to prepare him to this mammoth job.

It was this general philosophy that we attempted to put into effect in our mines some ten years ago when we decided that we had to do a much more effective safety job. Our goal at that time was not so much the elimination or reduction of roof fall accidents as such, but it was based on the philosophy that if we spent enough time and money, which we were willing to do, to make our mines safe, the biggest part of the job then became the psychological one of making our supervisors and our workmen want to cooperate in effectuating our goal of better safety generally.

While, as I have stated, our goal was not necessarily only the reduction of roof fall accidents, I wish to say that our roof fall accidents came in for their share of reduction. In the year 1946 our roof fall accident frequency was 14.60 per million man hours. For the year 1955, our roof fall accident frequency was 1.49. Over this same ten-year period, a very substantial reduction has occurred in our total accident frequency rate. I might add that at our own underground mines our roof fall accidents are not the major offenders as is the case in the national picture. The job we have to do in our own company is the placing of additional emphasis and work on other sources of accidents which are currently giving us more trouble than roof fall accidents. And certainly this is one essence of good management that we must all be flexible enough to turn our attention to specific problems as they arise and work out ways and means of conquering them.

The prevention of roof fall accidents is a big and a challenging job. The stakes are high—the saving of human life and limb. It is this kind of challenge which is the meat of coal miners and coal mine management. It is this type of challenge with which our industry is periodically confronted and one which we can meet and conquer as we have met and conquered the various challenges even to our very continued existence.

With the understanding and cooperation of the problem by all parties concerned — the management, the workmen, our Union representatives, the State and Federal Safety Agencies—this will be another problem which we will put behind us. I can assure you that when we have licked this problem we will have another one to take its place and to challenge us to greater heights of safety, efficiency and prosperity in our industry.



Next month, in Chicago, the Road Show will be staged. Prominently, and proudly, displayed will be Caterpillar Diesel Tractors, Motor Graders, Engines, Scrapers, Bulldozers.

The Caterpillar display symbolizes a dedication to "One Goal." What is "One Goal"? Well, expressed simply, it means Caterpillar's determination to design, build and distribute the finest equipment possible for you, our customer. We're "partners" in earthmoving progress.

But the Road Show—and "One Goal"—can't be restricted to Chicago. You'll find examples of both right on the construction jobs in your area . . . all year 'round. You'll find Caterpillar-built Tractors, Motor Graders, Diesel Engines and Earthmoving Equipment performing profitably for construction men everywhere.

We, your Caterpillar Dealers, sell and service those machines. Better than that we support that day-in, day-out Road Show with parts and service, with factory-trained personnel, with an understanding of what it takes to do your job profitably and on time.

That's our role in "One Goal". . . the part we play in the determination to design, build and distribute the finest equipment possible.

Yes, the show is on the road!

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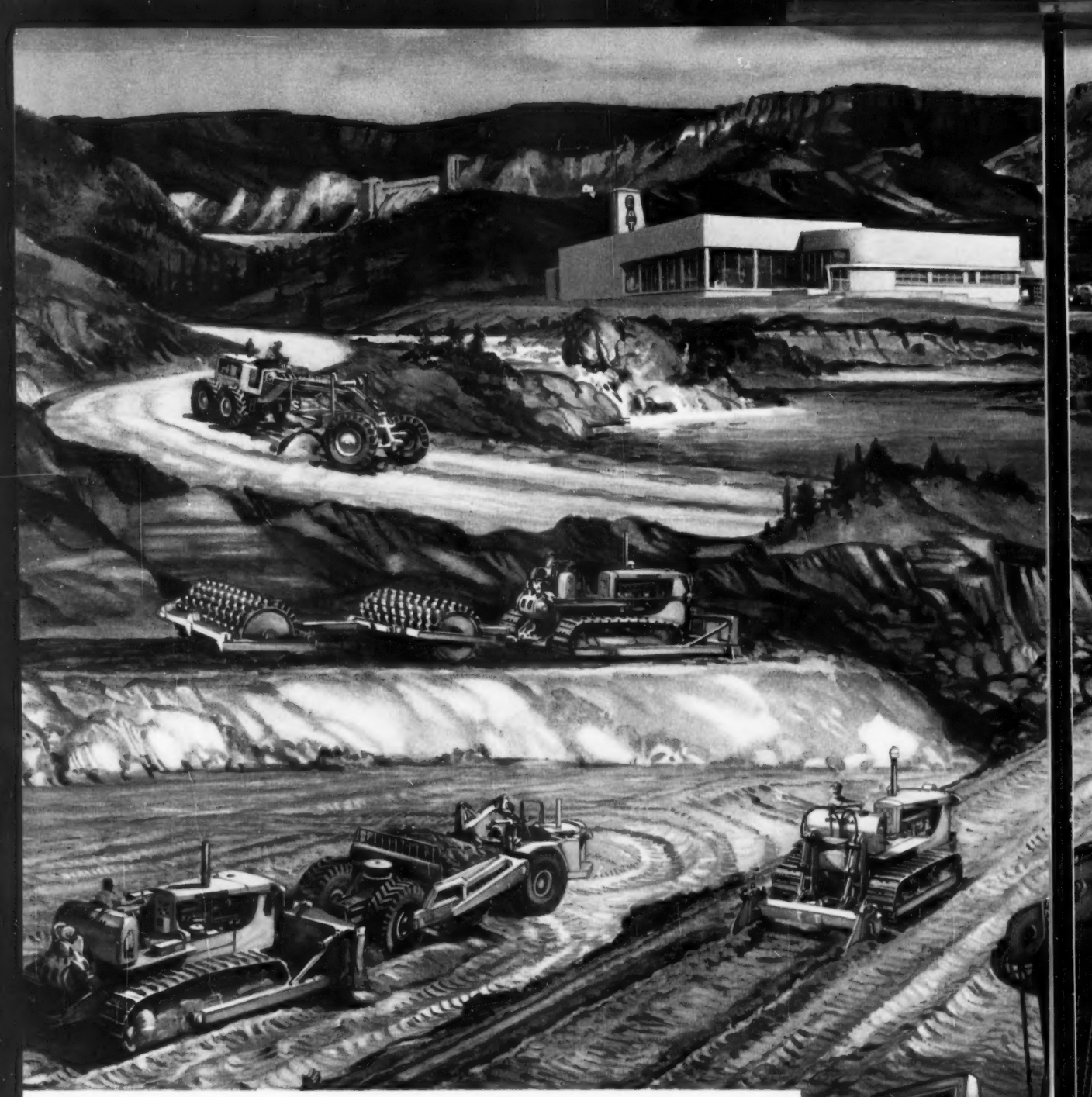
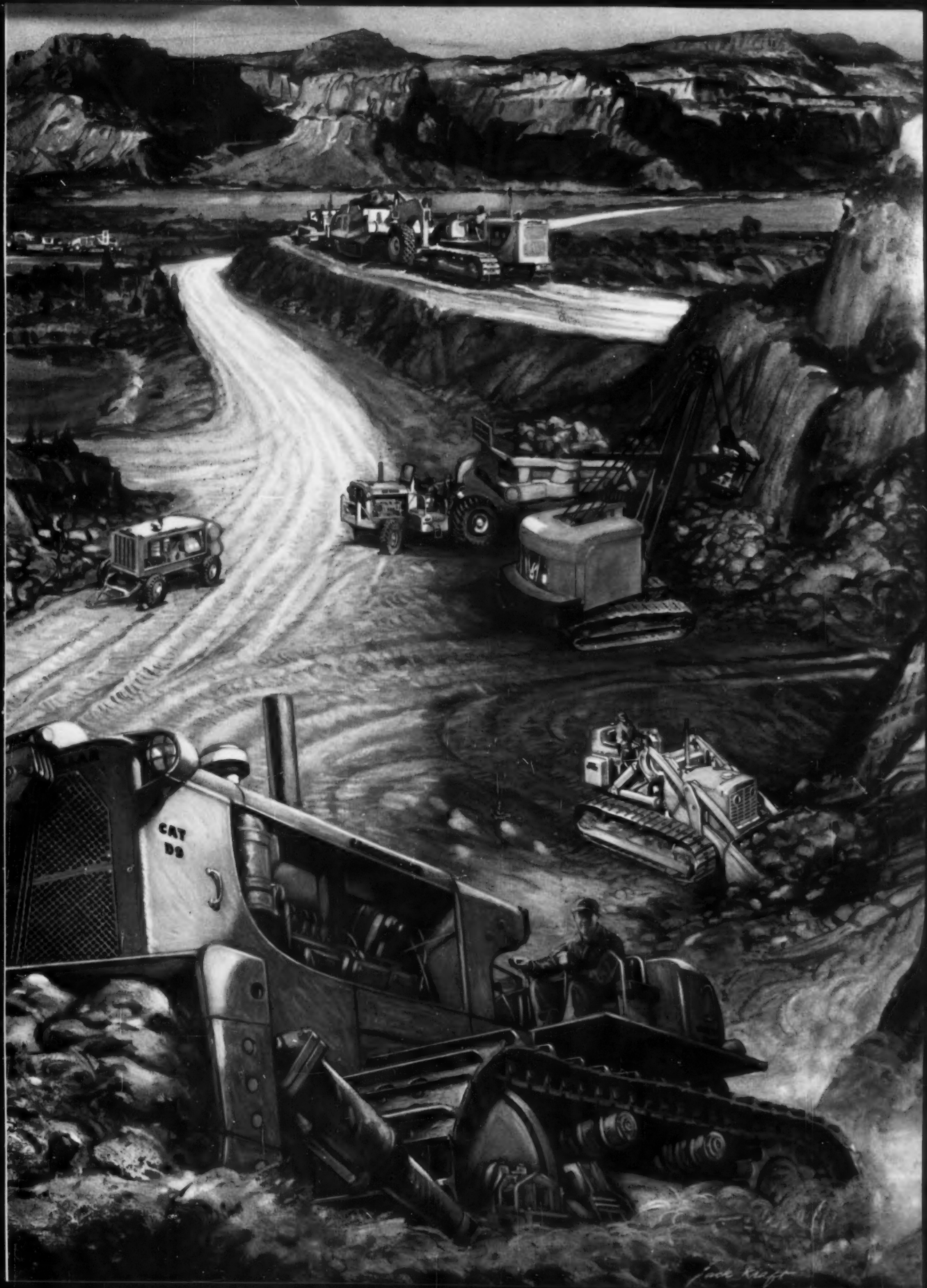
CM-5

See America's No. 1 roadbuilders at your CATERPILLAR DEALER



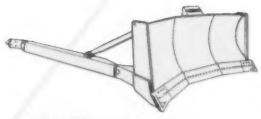
Here's your Caterpillar "ROAD SHOW" in action!

Back home — in your own "back yard" — that's where you'll see the preference for Caterpillar roadbuilders. That's where performance pays off in profits. That's where the cuts and fills, pioneering and clearing, grading and finishing are being done. Each calls for the right machine — and the best machine — to beat timetables at lowest cost. That's where we, your Caterpillar Dealer, can help you fit D9s or D2s, Traxcavators or Motor Graders, wheels or tracks, engines or mounted tools, to answer every problem you will ever encounter on your "Road Show" ahead! For job proof — call us and we'll gladly show you action-proof on road jobs in your "back yard" — all year 'round!

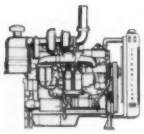

CAT
D8

"ROAD SHOW"

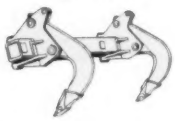
You can always see at your CATERPILLAR DEALER



DOZERS—Straight or angling blades

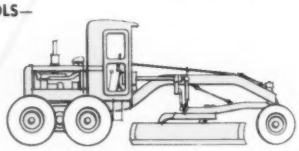


ENGINES—9 sizes, up to 650 HP†

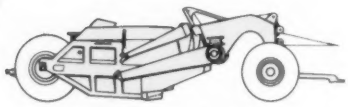


RIPPERS—2 sizes, tractor mounted

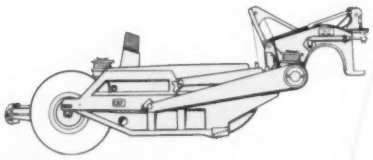
CABLE CONTROLS—Single and double drum



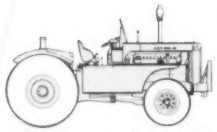
MOTOR GRADERS—3 sizes, 50 HP to 115 HP



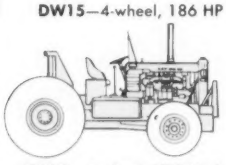
SCRAPERS (4-wheel)—5 sizes, 4.5 cu. yd. to 27 cu. yd. (heaped)



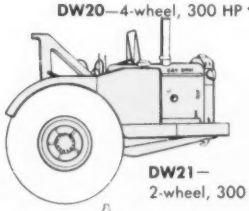
SCRAPERS (2-wheel)—2 sizes, 12.5 cu. yd. and 25 cu. yd. (heaped)



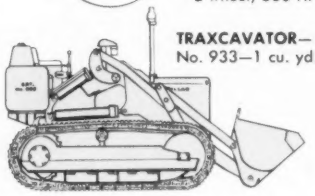
DW15—4-wheel, 186 HP †



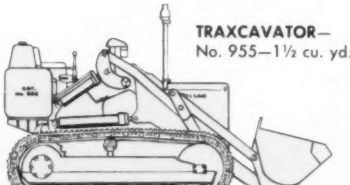
DW20—4-wheel, 300 HP †



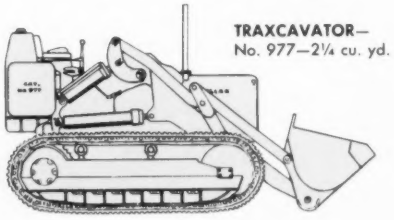
DW21—2-wheel, 300 HP †



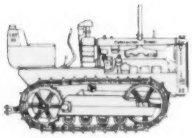
TRAXCAVATOR—No. 933—1 cu. yd.



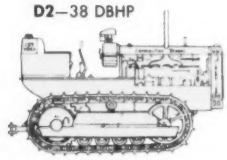
TRAXCAVATOR—No. 955—1½ cu. yd.



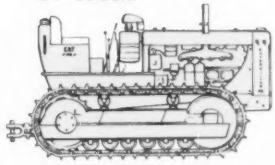
TRAXCAVATOR—No. 977—2¼ cu. yd.



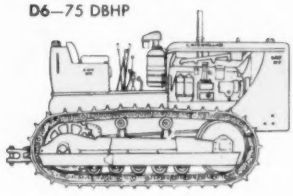
D2—38 DBHP



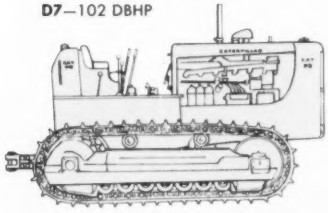
D4—50 DBHP



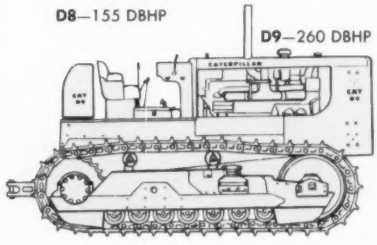
D6—75 DBHP



D7—102 DBHP



D8—155 DBHP



D9—260 DBHP

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Nowhere in the world can you find a more complete line of tractors, motor graders, earthmovers and engines than offered by your Caterpillar Dealer. Nowhere can you find an equal selection built by one manufacturer—backed by one dealer—your Caterpillar Dealer. Nowhere else will you find the machines matched with power and integral equipment to perform at lowest cost on the multi-billion-dollar highway program ahead. Nowhere else is there a dealer organization to match the trained manpower, parts-in-stock, specialized service facilities of your Caterpillar Dealer.

† Maximum Output

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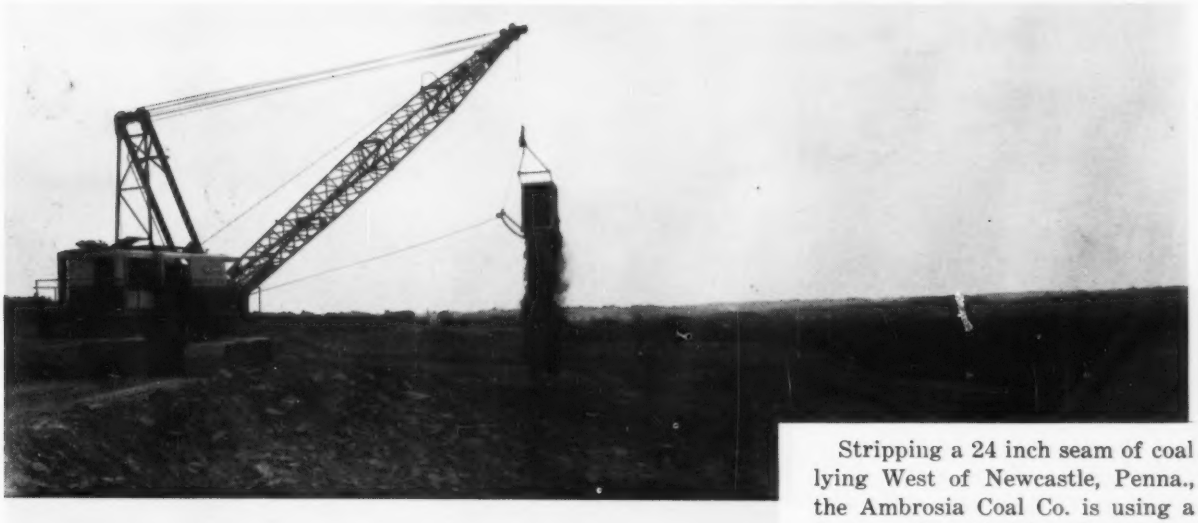
Your CATERPILLAR DEALER is geared to go on *YOUR "ROAD SHOW"*

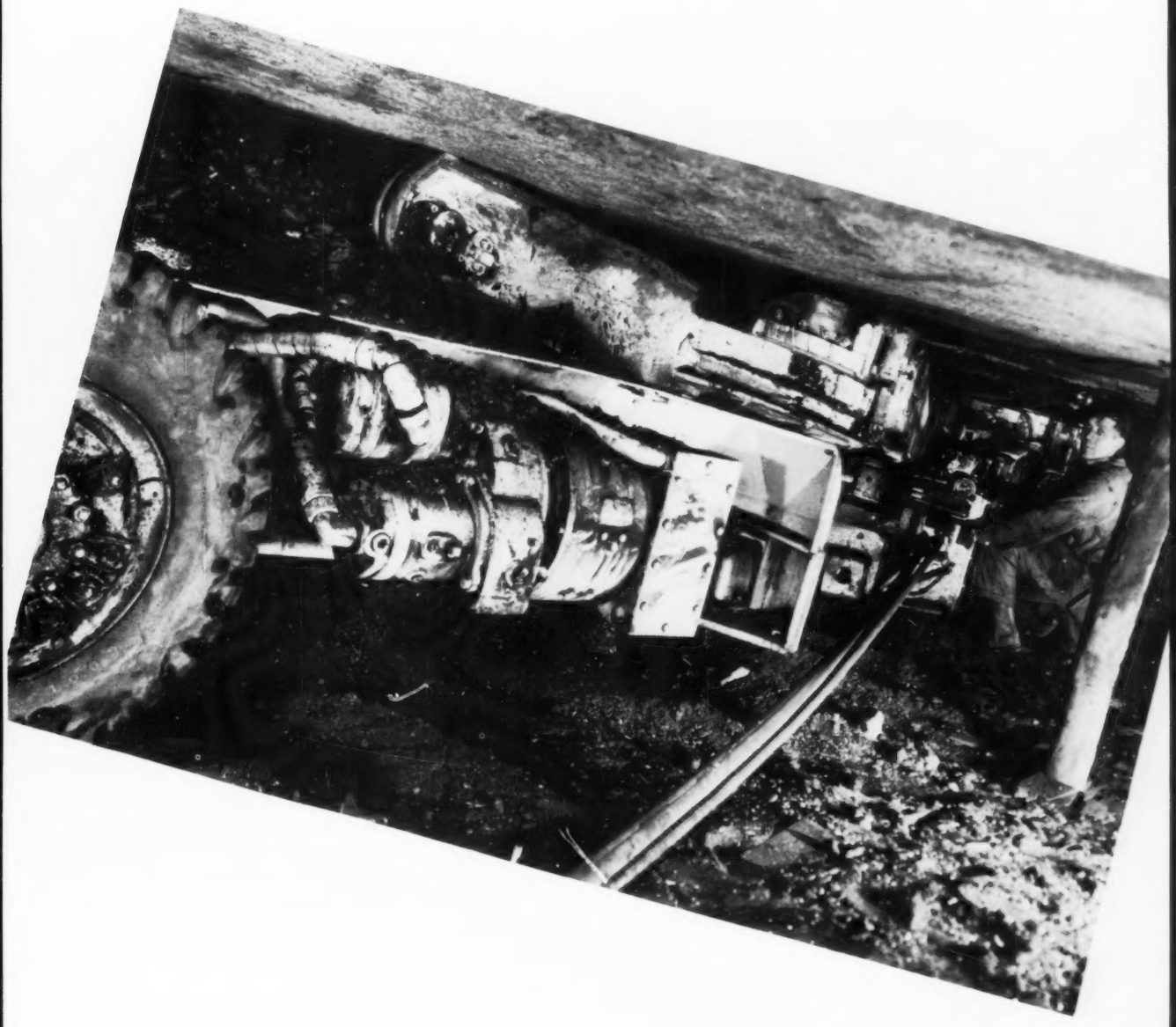
fast and easy handling Dragline
STRIPS COAL ECONOMICALLY
at Ambrosia Coal Co.



Stripping a 24 inch seam of coal lying West of Newcastle, Penna., the Ambrosia Coal Co. is using a Bucyrus-Erie Model 88-B dragline having a 5 yard bucket to move 6 feet of limerock and yellow shale. A Caterpillar D-8 tractor pushes top shale, makes bed for the tractor and does other general work in the pit.

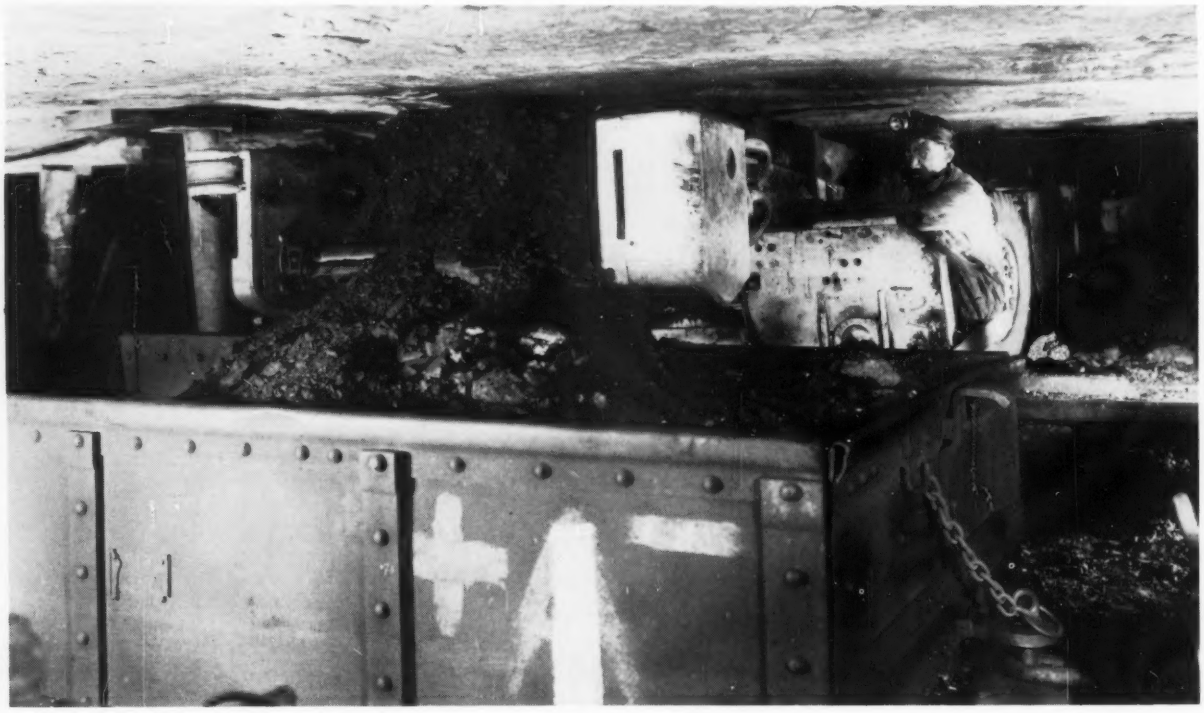
Jeffrey Colmole working in Central Pennsylvania coal seam.

4-DAY WEEK ON THE WAY



Colmole Loading into Jeffrey Shuttle Car.

- - - automation expert predicts



Jeffrey Shuttle Car transfering into Mine Car.

The four-day week with high pay is on its way as a result of automatic controls and, automation Merald Lue, publisher of Automatic Control, predicted to the Industrial Hygiene Foundation annual meeting.

Just as the coffee break has become an accepted innovation in American industry today, these are some of the situations that can arise from rapidly-developing time and labor saving and safer environments being created by automatic controls and automation as predicted by Mr. Lue:

The four-day week will come at high pay.

Recreational facilities for plant and office workers will be used nights, weekends and even during working hours.

Organized sports or body-conditioning exercise activities will be provided for plant and office workers during and beyond the work day.

On-the-job study and training for employees will advance them to more responsible, more skilled, more demanding positions that impose greater mental strains.

Mentally up-graded employees and automatic machines will replace costly, physical injuries with psychiatric problems. These grow from monotonous or repetitive operations, from free time both in and out of the plant or office and from greater responsibilities for plant operations.

Automatic controls and automation will increase production and lower costs.

Labor force will not necessarily decrease but can be absorbed by manufacturers of new products made possible by automatic controls and high speed, automatic operations.

Men will work on jobs which never existed before, because the product, production facilities and equipment are entirely new.

Volume production has an insatiable appetite for parts and materials which can only be satisfied when men and machines mass produce them.

Holding the individual worker's wage commensurate with current needs retains his buying power and keeps the cycle fueled with demand.

In Centrifuge for Mixing

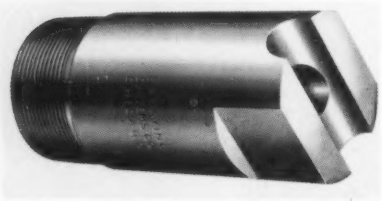
Complete automation has been applied to large centrifuges, whirling devices for mixing all sorts of materials, including food, metals, drugs and chemicals.

The new automatic centrifuge demonstrated by the Fletcher Works, Philadelphia, Pa., performs these operations automatically, feeds the machine, gives material being processed repeated washes, puts it through a final drying process, reduces speed to allow unloading and then cleans its filter without human hazard or error.

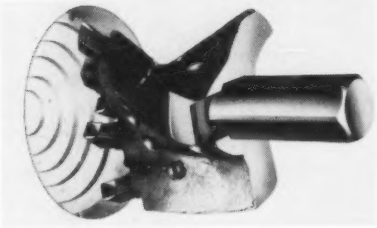
Caterpillar D-7 Tractor equipped with No. 7A Bulldozer is working in anthracite operation of Kaminski Brothers near Wilkes-Barre, Pa.

Allis-Chalmers HD-21 Diesel-powered torque converter drive crawler tractors with Allis-Chalmers 315 pull-type Scrapers coal stripping in Ohio.

Lima Model 2400 Dragline stripping for Bob Bailey, Philipsburg, Pa.



Spraying Systems Co. announces a new, large capacity flat spray nozzle as an addition to its Veejet line. Identified as the 2-U-Veejet, this new nozzle is the largest of its type ever produced by the company. Capacity of this new type nozzle ranges from 73 GPM at 15 psi to 330 GPM at 300 psi. It is supplied in choice of two types of spray angles. The nozzle is designed free of cores, vanes or obstructions of any kind and is made with a 2 in. male pipe connection. Designed for heavy duty cooling and washing operations, the 2-U-Veejet is also suitable for other applications where a large capacity flat spray is desired. Made standard in brass and can be supplied in other materials upon order. For complete information write for Data Sheet 6868 to Spraying Systems Co., 3201 Randolph Street, Bellwood, Illinois.



A new drag bit drill head that is reputed to speed up auger drilling of blast holes and effect substantial cost savings is announced by Austin Powder Company, Cleveland.

Known simply as Model AP, it is a 3-wing prop type head designed for use with special patented carbide-tipped bits. The latter have tapered shanks that drive-fit firmly in the drill head so that wedges or set screws are not needed. Bits can be removed with hammer and punch.

Because head and bits act as one unit, Model AP is reputed to cut faster than ordinary drill heads with rotating bits. It is available in 5 sizes for cutting holes of from 4⅝" to 8⅝" in diameter. It is suitable for use in all types of sandstone and other fine ground rocks found in coal mining, road construction and seismograph work.

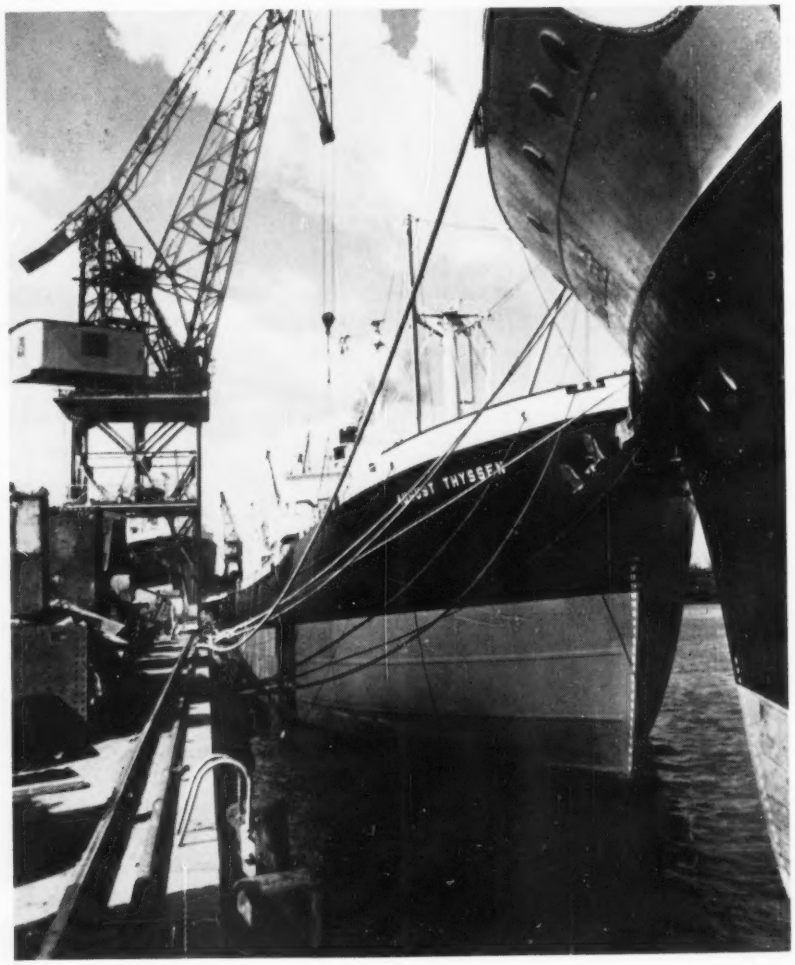
For data, request catalog 101, Austin Powder Company, Cleveland, Ohio.

Disasters pave the path of human progress. This is small solace to the victims of such tragedies as the collision of airplanes over the Grand Canyon. It does not minimize the loss in life that occurs due to the growing use of automobile transportation, hour by hour, even though the propaganda accent is greatest on holiday weekends.

These disasters do not stem the progress of technology. They never have. The prehistoric caveman who burned his fingers in his new-found fire did not forego the warmth of flame and the taste of roast meat. The hazard of runaway horses was not the cause of the passing of the horse-and-buggy age.

For the future, the world may expect more disasters, although they can be minimized by careful and scientific testing and planning. We have learned to work out methods of anticipating what may happen as new things are developed and then preventing the trouble that might have happened.

The long delays and high cost of shipping urgently needed U. S. coal to booming European industry has caused August Thyssen-Huette A. G., a leading West German steelmaker, to purchase a 7,000 ton freighter solely to shuttle between its port of Hamborn and Hampton Roads, Virginia, where it will pick up part of the 4,000,000 tons of American coal purchased here recently by the West German steel industry.



EUCLID BUILDS NEW 40-TON REAR DUMP

A new 40-ton Rear Dump Euclid with a struck capacity of 26 cubic yards is announced by the Euclid Division of General Motors Corporation.

A Twin-Power unit with separate engines, each driving its own rear axle through 3-speed Allison Torqmatic Drives, the new unit replaces Euclid's former 34-ton model.

Known as the R-40, it is powered by either two 235 h. p. G. M. engines or two 250 h. p. Cummins engines. Both are turbo-charged providing a substantial increase in horsepower. Tires have been increased in size to 18.00 x 25 and a larger differential employed.

A rustproofing agent that adheres tenaciously to metal, particularly at high humidities, has been invented by Malvern J. Hiler of Dayton, Ohio.

The rustproofers are made from testers of dextran combined with fatty acids of from eight to 18 carbon atoms. These compositions, the inventor says, are particularly adaptable for use in lubricating oils ranging from light machine and household oils to heavy lubricants and fuel oils for large internal combustion engines, including diesels.

In tests with the compositions, exposure of a treated surface to high humidity and direct contact with salt water did not result in the development of rust spots. Mr. Hiler received patent No. 2,756,156 and assigned the patent rights to The Commonwealth Engineering Company of Dayton, Ohio.

Publication of a new four page catalog, describing the complete Galion Allsteel line of telescopic hoists, is announced by Galion Allsteel Body Company, Galion, Ohio.

The new 2-color catalog describes and illustrates various Uniscopic single front mounted and Duo-scopic twin front mounted telescopic hoists. According to the manufacturer, these hoists permit hauling of increased payloads within legal weight limits by reducing hoist dead weight and by shifting body and payload weight forward onto the truck's front axle.

Descriptions and specifications cover 9 hoist models, with payload capacities from 9 to 34 tons. The catalog, profusely illustrated, contains action, detail and cutaway photos. Matching bodies and payload-adding accessories are also shown.

Catalogs are available from local Galion Allsteel distributors, or by writing to Galion Allsteel Body Company, Galion, Ohio. Ask for catalog LL-4094.

Fast, flexible operation is aided by the drill arm swing of 10' 9½" right and left of center, reducing truck maneuvering.

for full time roof bolting, the 56-RDR Drilling Machine
(PATENTED)

Big, sturdy, easy to maneuver and fast drilling . . . the Jeffrey 56-RDR Drilling Machine is designed for the continuous operation demanded in busy mines.

Check these features: the Jeffrey 56-RDR Drilling Machine can bolt a wide room from one position. Drill boom controls are centralized and within convenient reach of the operator. Its size and stability enable the unit to carry generous quantities of roof bolting materials and drill supplies. The Jeffrey cable reel reduces wear on cable, holding down maintenance costs.

Bulletin 831-A describing Jeffrey Drills and Drilling Machines will be sent to you free. The Jeffrey Manufacturing Company, Columbus 16, Ohio.

JEFFREY
MINING • PROCESSING • CONVEYING EQUIPMENT
TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

THE STORY BEHIND A FAMOUS PROMISE

We have often published this statement: *"J. T. FISH is always open to buy."* We are able to live up to this pledge because we operate a diversified, large volume business on a small margin of profit. Just as we guarantee an unfailing source of the BEST in mining equipment at the LOWEST possible prices, we guarantee a year-round market for your surplus machinery, rails, wire and supplies.

We Own What We Advertise

Buy from the largest stock of good mining equipment in America. Includes all types of Joy Cutters, Loaders, Shuttle Cars, Cat Trucks, Belt Conveyors, Chain Conveyors, etc.

JOY EQUIPMENT—rebuilt
1—Joy 20-BU Loader, latest type.
2—Joy 14-BU Loaders, low pedestal.
2—Joy 14-BU Loaders, medium pedestal
2—Joy 14-BU Loaders, high pedestal.
3—Joy 12-BU Loaders, 9E, latest type.
2—Joy 12-BU Loaders, 7E, excellent.
3—Joy 11-BU Loaders.
6—Joy 8-BU Loaders.
2—Joy 8-BU Loaders, 34" overall.
1—Goodman 660 Loader on cats, excellent.
1—Joy 6-SC Shuttle Car, rebuilt.
2—Joy 8-SC Shuttle Cars, lowest type.
1—Joy 5SC Shuttle Car, rebuilt.
2—Joy 32E9 Shuttle Cars.
2—Joy 32E10 Shuttle Cars.
4—Joy 32E15 Shuttle Cars.
2—Joy 32E16 Shuttle Cars.
1—Joy T-1 Standard Cat Truck.
1—Joy T-2-5 Cat Truck, AC.
1—Joy T-2-6 Cat Truck with reel.
4—Joy 11-B Cutting Machines, like new.
1—Joy 7-B Cutting Machine, like new.
2—Goodman 512 Machines, with Bugduster.
4—Goodman Machines on Cars, 31" high. All hydraulic.
1—Goodman 512 Cutting Machine, perfect.
3—LeNorse low vein Machine Carriers.

LOCOMOTIVES
2—Jeffrey, 20 ton, type MH-110, 42" and 44" Ga.
2—Jeffrey MH-2124, 15 tons.
4—Jeffrey, 13 ton, type MH-110, 36", 42", and 44" Ga.
3—Jeffrey, 10 ton, type MH-78, 42" and 48" Ga.
12—Jeffrey, 6 ton, type MH-88, 42", 44" and 48" Ga.
3—Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.
1—G. E. 4 ton, type 825 Locomotive, 26" high.
10—G. E. 6 ton, types 801, 803, 821 Locomotives, 42"", 44" and 48" Ga.
1—G. E. 8 ton, type 822 Locomotive, 44" Ga.
3—G. E., 10 ton, type 809 Locomotives, 42", 44" and 48" Ga.
1—G. E. 10 ton, 829 Locomotive, 36" Ga.
1—Goodman 4 ton, 8-30 Locomotive, 22" above rail.
1—Goodman 6 ton Locomotive, 26" high.
8—Goodman type 33, 6 ton, 44" and 48" Ga.
3—Goodman, 8 ton, type 32A, 36", 44" and 48" Ga.
3—Westinghouse, type 902, 4 ton, 42" and 48" Ga.
2—Westinghouse, type 904, 6 ton, 44" and 48" Ga.
2—Westinghouse, type 906, 44" and 48" Ga.
2—Westinghouse, type 907, 10 ton, 44" and 48" Ga.

TIPPLE EQUIPMENT
1—Cedar Rapids portable super Screening Plant.
1—Ailis Chalmers 5'x14' Rippflo Vibrator.
1—4'x10' Robbins Gyrex Vibrator.
1—4'x14' Vibrator, three deck, low head.
1—Complete all steel Tipple, 3 track.
1—Complete 4 track Tipple with washer and dryer.
Feeders, Drag Conveyors and Loading Booms.

CUTTING MACHINES
1—Jeffrey 29-UC Universal on cats.
3—Goodman 512-G-3, 220 AC. Rebuilt.
1—Baby Goodman 212, rebuilt.
3—Goodman 312's, 18" high.
2—Goodman 512's with Bugdusters, like new.
15—Goodman 12AA's and 112AA's.
10—Goodman 324 Slabbers.
2—Goodman 724 Slabbers.
30—Jeffrey 35L's, like new, 17" high.
15—Jeffrey 35B's and 35BB's.
2—Jeffrey 29B's on track.
2—Jeffrey 29C's, track mounted.
2—Jeffrey 29L's on track, perfect.
2—Sullivan CR-10's, 15" high.

LOADING MACHINES
17—Joy Loaders, all types.
2—Jeffrey 61 CLR's on rubber, 26".
3—Jeffrey L-500 Loaders.
2—Myers Whaley No. 3 Automat Loaders.
3—Clarkson Loaders, 26" above rail.

CONVEYORS
2—Joy 30" Belt Conveyors, 10 to 15 H. P.
3000' 30" Conveyor Belt.
8—Jeffrey 61AM Room Conveyors, 300 ft.
10—Jeffrey 61HG Face Conveyors.
2—61EW Elevating Conveyors.
2—61WH Room Conveyors, 300 ft.
4—Joy Ladel UN-17 Shakers.
10—Goodman G-12½ and G-15 Shakers.

CONVERTERS AND DIESEL PLANTS
1—50KW, G. E., TC-5, 275 volt, Rotary Converter.
3—100KW, G. E., TCC-6's, 275 volt, Rotary Converters.
1—150KW, G. E. HCC-6's, 275 volt, Rotary Converters.
1—200KW, G. E. HCC-6 Rotary Converter, 275 volt, DC.
3—300KW, G. E. HCC-6 Rotary Converters, 275 DC.
1—200KW, WeWstinghouse Rotary Converter, 275 DC.
(All the above with 6900/13000 and-or 2300/4000 primary transformers.)
1—65KW MG Set, General Electric, 275 volt.
2—150 KW MG Set, General Electric and Westinghouse.
1—200KW MG Set, Ridgeway.
1—Cummins 125KW Diesel with 250 volt DC Generator.
1—700 H.P. Shaft Hoist, complete.
Complete steam plant, will sell all or any part.
Boilers, like new, 110 H. P., and 500 H.P. Also transformers, turbines, etc.
Complete Tipples with Cleaning Plants.

MISCELLANEOUS
10—Air Compressors, 1 H.P. to 50 H.P.
40—Mine Pumps, all types.
2—Barber Green self propelled Bucket Elevators.
Pipe, Plastic Steel Transit, all sizes 1" to 6".
15—Mine Cars, drop bottom, 42" Ga.
150—Mine Cars, 18" high, end dump, 44" Ga.
300—Mine Cars, end dump, 20" high, 48" Ga.
15—Brown Fayro HKL and HGD Car Spotters.
1—12 ton Differential Slate Larry.
5—Low Vein Water Cars.
Incline Hoists, 25 to 50 H.P.
Machine Tools for mine shops.
4—Storage Tanks, 10,000 gallon.
1—Storage Tank, 8,000 gallon.
Five Gallon G. I. Cans.
400 tons Rails, 25 lb. to 60 lb.
10 tons Copper Trolley and Feeder.
300 Transformers from 1 to 2,000 KVA, 110 to 13,000 primary volts.
400 Electric Motors, 3 to 200 H.P.
Huge stock of mine supplies.
Suspension Bridge, 300 ft. long for river crossings.
1—International TD-24 Angledozer.

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LOGAN, West Virginia **Phone 2825**

Mine Safety Appliances Company honored 589 employees of 10 or more years service at the company's annual awards dinner November 13 in the Webster Hall Hotel, according to C. E. Askew, personnel director.

Dr. Arthur Secord, director of community services and professor of speech at Brooklyn College, N. Y., was the principal speaker. The MSA Choral Group sang, and the Joey Sims Orchestra provided musical entertainment.

Service awards were presented to three employees who have reached the 35-year service group; 13 who have reached the 30-year bracket; seven who have attained the 25-year level; 22 who joined the 20-year group. 78 in the 15-year group, and 12 additional members of the 10-year classification.

George H. Deike, chairman of the board, and John T. Ryan, pres. of MSA, made the presentations.

• Plastic lenses give the best protection to the eye against small splinters travelling at high speed, Dr. H. W. Rose and G. M. Stewart found in studies at Randolph Air Force Base School of Aviation Medicine, Texas.

These small splinters are the kind involved in most of the cases seen in which a foreign body penetrates the eye, the scientists pointed out in their report to the Association of Military Surgeons of the U. S. meeting.

They used a helium gun to fire steel balls and splinters at unhardened, hardened and laminated glass lenses and plastic lenses to determine how these would keep the missiles from penetrating the eye.

Hardened glass, such as used by the Armed Forces and industry for protective glasses, is not broken by steel balls of about 18 millimeters (about half an inch) in diameter at a velocity of 17 feet per second. But with the small splinters, hardened glass is broken and is inferior to unhardened glass. It then no longer protects but is a hazard because of secondary missiles.

• For badly damaged finger joints, there is now a stainless steel hinge that works without pain and improves the appearance of the injured hand. Good results with it in 10 cases were reported by Lt. Col. Earl W. Brannon of the U. S. Air Force Hospital, Lackland Air Force Base, San Antonio, at the meeting of the Association of Military Surgeons of the U. S.

"In the large military hospitals," Col. Brannon stated, "we see a significant number of damaged finger joints resulting in permanent disability."

None of the attempts heretofore to correct this disability has been successful, he said.

The artificial joint consists of two parts jointed by a simple hinge joint which is locked by a half-threaded screw and nut. Each part has a stem by which it is inserted into the finger bone. The device is designed to prevent unwanted rotation and instability which are common faults of other types of finger joint replacements.

The 10 patients Col. Brannon reported had all gotten their bad fingers from injury such as baseball injuries. They faced having a permanently stiff finger or having it amputated. The new joint has worked so well that all 10 men could be returned to full military duty after a short period.

Shovel – Draglines
Drills
Cranes – Euclids

025 Page Diesel Drag, 160′, 10 yd.
3160 Bucyrus Monighan Elec. Drag, 160′, 8 yd.
21-S Page Diesel Drag, 125′, 7½ yd
00-W Bucyrus Monighan Drag, 125′, 6 yd.
7-W Monighan Elec. Drag, 120′, 7 yd.
100 Lima Drag, 110′, 6 yd.
200 Marion Diesel Drag, 135′
20-B Bucyrus Erie Elec. Drag, 115′, 5 yd.
W Bucyrus Erie Drag, 120′, 5 yd.
500 Manitowoc Drag, 120′, 5 yd.
055 P&H Drag, 90′, 3½ and 4 yd.
201 Lima Drag, 85′, 3 yd.
-B Bucyrus Erie Comb. Crane and Drag.
02 Lima Cranes
500 Manitowoc 60 ton Crane
500 Manitowoc Drag, 80′, 2½ yd.
55 P&H Drag, 90′, 2½ yd.
03 Osgood Drag, 70′, 2 yd.
480 Marion Elec. 15 yd. Shovel
70-B Bucyrus Erie Elec. 6½ yd. Shovel
600 P&H 6 yd. Shovel
2400 Lima Standard 6 yard Shovel
120-B Bucyrus Erie Elec 4½ yd. Shovel
4500 Manitowoc 4 yd. H. L. Shovel
1201 Lima Standard 3½ yd. Shovel
1201 Lima 2½ yd. H. L. Shovel
3500 Manitowoc 2 yd. H. L. Shovel
3000-B Manitowoc 2 yd. Shovel
320 Lorain 2 yd. Shovel
803 Lima 1½ yd. H. L. Shovel
Unit 1020 ¾ yd. Shovel—1 yr. old
600 Reich Heavy Truck Mounted Rotary Air Drills (Both Lever Arm and High Mast)
Davey Rotary Truck Mounted Air Drills
Mayhew Rotary Truck Mounted Air Drills
58-BH Joy Champion Rotary Air Drills
42-T, 29-T and 27-T Well Drills
Portadrill Truck Mounted Air Drill
Euclid Trucks—27FD, 18FD, 8TD, 36FD, 82FD, 13TD, 14TD, 63TD—Bottom and Rear Dumps.

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Equipment Co., Inc.
313 Hazleton Nat'l Bank Bldg.
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NOW at BECKWITH MACHINERY COMPANY

BUILT BUY

USED EQUIPMENT

Item: 1156-E218 Galion Motor Grader with IHC Diesel Engine equipped with Cab, Scarifier and Large Tires. This machine is in **excellent condition in every respect** $8500.00
F.O.B. Erie, Pa.

Item: 956-P514 Caterpillar D4-HT4 Hydraulic Hy-lift, 1¼ Cu. Yd. 80" Wide Bucket. Rebuilt right final with new hub and seals; reconditioned radiator Core; replaced hydraulic control linkage and seals; replaced cutting edge; replaced track carrier rollers and temperature gauges, adjusted operating clutches; track rollers, sprockets and idlers are good. $6800.00
F.O.B. Pittsburgh, Pa.

Item: 856-P490 Caterpillar D7 Tractor with Cat No. 25 Cable Control and Straight Blade. Replaced moldboard; replaced cutting edge and end bits; installed new carrier rollers; tracks are 90% of new, installed one new sprocket; replaced seals and bearings in final drive; replaced pinion seal and one new flange; installed new seals and bearing in transmission; reconditioned steering clutches; installed new master clutch; tuned starting engine; serviced diesel engine; bottom rollers are good. $13,000.00
F.O.B. Pittsburgh, Pa.

"Certified Buy"
Item: 256-B166 Caterpillar D8 Tractor with 8S Bulldozer and No. 24 Cable Control, Crankcase Guard, Front Pull Hook, Canopy Top and 4 White Lights. This equipment is in good mechanical condition; has operated approx. 4 months since repairs were made which included final drives, new track roller assemblies, new 24" tracks complete. We recently made minor repairs, cleaned and painted. $14,000.00
F.O.B. Bradford, Pa.

Item: 1056-E215 Caterpillar D4 Tractor with 16" Tracks, Electric Starting System on Gas Engine; mounted with 4A Blade and No. 44 Hydraulic Control; also has rear mounted Scarifier. This machine has 2800 hours on it and is 5 years old. It is approx. 80% of new condition and has an excellent appearance. All tracks are very good $6700.00
F.O.B. Erie, Pa.

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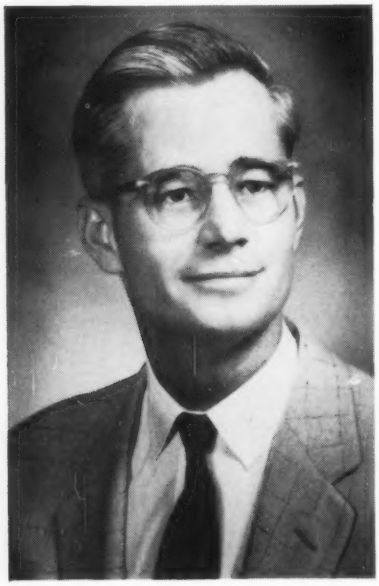
E. Broadway, Farrell, Pa.
Buckhannon Pike, W. Va. Route 20 (So.), Clarksburg, West Va.

LUBRICATION SPRAY EQUIPMENT

A new, free eight-page brochure — Bulletin No. 60-A — provides complete information on Farval SPRAY LUBRICATION SYSTEMS for open gearing and slide surfaces. The three-color, illustrated booklet offers descriptions of manual and automatic systems and component equipment with schematic layouts as well as actual application views. Available from The Farval Corporation, 3249 East 80th Street, Cleveland 4, Ohio.



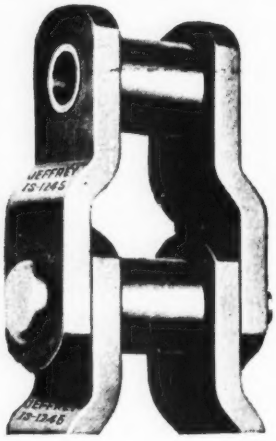
Appointment of G. B. Edgell as manager of the engineering department, Davey Compressor Co., is announced by Paul H. Davey, president.

Mr. Edgell has been affiliated with Davey since 1940. During World War II, he served 3 years in the U. S. Army Corps of Engineers in charge of the heavy mobile machine shop training division. Since 1945, he has been director of automotive engineering for Davey, specializing in power take-off applications including "Auto-Air" truck-mounted compressors, field service units and mobile machine shops.

In his new position, he will be located in the Davey Compressor Company's general offices in Kent, Ohio.

The United Mine Workers, Company Management, U. S. Bureau of Mines, W. Va. State Dept. of Mines, pledged their cooperation to achieve 100 percent training in Accident Prevention as conducted by the U. S. Bureau of Mines at The Garden Ground mine, The New River Co., Mount Hope, West Virginia.

Planning for the course were: W. L. Burruss, Jr., Chief Engineer of New River Co.; James H. Page, Acting Mine Superintendent; Eddie Catlett, President of U. M. W. A. Local Union 8533; Lloyd G. Fitzgerald, Mining Engineer for the U. S. Bureau of Mines and Course Instructor; William Haynes, Chairman of U. M. W. A. Safety Committee Local 8533; and Andrew Easton, Jr., Inspector-at-Large, W. Va. State Dept. of Mines. Standing, left to right: Ralph Castle, General Mine Foreman; J. D. Dodson, General Night Foreman; Eddie Kamensky, Mine Union Committeeman; Charles Gavanus, Safety Committeeman; Lionel Brewer, Union Financial Secretary; Paul Boland, District State Mine Inspectator; and James Leeber, Jr., Safety Engineer for U. M. W. A. District 29.



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Need JEFFREY replacements quickly? Standard parts carried in stock

JEFFREY CHAIN has maximum strength . . minimum weight . . and added reserves for long periods of normal wear plus shock from unexpected overloads.

Northeastern and Zanesville Supply Companies are also headquarters for MacWHYTE Wire Rope, DIAMOND Roller Chains, Sprockets and Flexible Couplings, CONVEYING Idlers, Belting, and all sizes and types of BRAKE LINING and friction materials.

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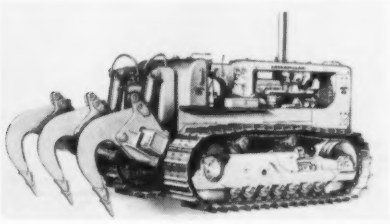


A new tractor-mounted ripper designed specifically for use with the Caterpillar D9 Tractor has been announced by Capterpillar Tractor Co. It will be called the No. 9 Ripper.

Increased maneuverability, better control of ripping depth, and extreme utility are the important features of the new ripper.

The complete ripper consists of two mounting brackets, two hydraulic cylinders, one beam assembly, and three teeth. It weighs 10,830 lbs.

The No. 9 Ripper mounts on the bevel gear case through a special drawbar bracket group which replaces the standard drawbar brackets. The ripper is operated hydraulically by two hydraulic cylinders working in conjunction with the Caterpillar No. 50 Hydraulic Control. The convenient hydraulic controls give the operator good control of the ripping depth which can go down to 28 inches.

The box-section beam, 12"x12½" x10"7¾", is made of alloy steel plates, submerged arc welded for high quality welds, and reinforced inside by additional plates.

The shanks are made of heat-treated steel to withstand the rugged terrain they will encounter. Each shank has a hardened alloy cast steel boot which has a replaceable, hardened cast steel point. The teeth are swivel mounted to "roll with the punches". When rocks or other obstructions are encountered, the teeth will swivel up to 10° to minimize the rugged side thrusts.

The No. 9 Ripper is driven from a "live drive" hydraulic pump which permits the ripper to be raised and lowered independently of the flywheel clutch or torque converter. A convenient control feature is the automatic kickout which throws the hydraulic control lever back to "hold" position at the end of the "raise" stroke.

Down pressure available to the ripper is equal to the weight of the rear of the tractor. If the operator desires, he can easily reach and maintain the maximum ripping depth.

This new tractor-mounted ripper can perform a variety of jobs and extends the utility, range and efficiency of the bulldozer and scraper.

The ripper is used primarily to break up hard materials for subsequent scraper loading. When mounted on a D9 Tractor used for push loading, it enhances the utility of the tractor. Besides push-loading, the D9 can rip between cycles for easier scraper loading.

The many other jobs the No. 9 Ripper is capable of performing would include: breaking up old black-top or concrete; clearing and ripping roots to make dozer work easier; and breaking frozen ground or stratified shale so that other machines can get in to work.

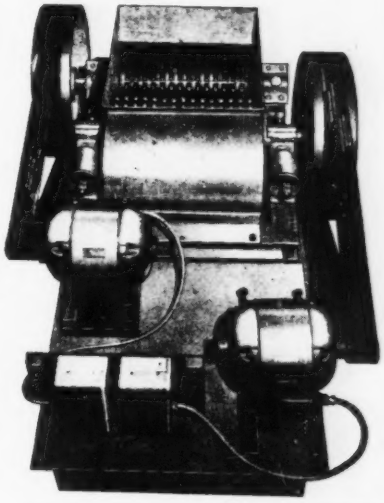
A new 100 KW self-regulated diesel electric set has been added to the expanding line of Caterpillar-built power generating equipment, according to a recent announcement by Capterpillar Tractor Co.

SCOTTDALE MACHINE, FOUNDRY & CONSTRUCTION CO.

DEPT. CM BOX 51 SCOTTDALE, PA.

DOUBLE ROLL

COAL CRUSHER



EFFICIENT . . . produces a more uniform product!

ECONOMICAL . . . uses less power!

BOOSTS . . . sales—profits!

NO. 63 SPECIAL — 2 Motor Drive — Produces a Product ¾" to 8". Equipped with Two Grooved Flywheels. (No Gears)

Efficient and practical the shredding action of the crusher's tooth studded double rolls turns out a more consistent product. Quality produced forged steel tooth gears, welded steel base, bronze bushed journal bearings, welded steel hopper and grooved flywheels.

Long Life Facts!

KEYSTONE MADE ARCH POSSIBLE 500 BC

THE ARCH WITH ITS CAREFULLY SCULPTURED KEYSTONE WAS FIRST USED ABOUT 500 B.C. TODAY CENTURIES-OLD BUILDINGS USING THE KEYSTONE STILL STAND...A LONG-LIFE TRIBUTE TO CAREFUL DESIGN AND WORKMANSHIP.

CAT VALVES GIVE "KEYSTONE" PERFORMANCE

CAT VALVES HAVE DEMONSTRATED THEIR QUALITY DESIGN AND MANUFACTURE BY SUCCESSFULLY WORKING FOR THOUSANDS OF HOURS. THEY ARE PRECISION-MADE OF SPECIAL LONG-LIVED, HEAT RESISTANT ALLOY STEEL.

BEARINGS AN IMPORTANT KEY TO LONG ENGINE LIFE

LIKE THE KEYSTONE, CAT ALUMINUM-ALLOY MAIN BEARINGS RESIST CORROSION, CARRY SEVERE LOADS, GIVE LONG LIFE, AND ARE MADE TO CLOSE TOLERANCES.

REMEMBER ONLY YOUR CATERPILLAR DEALER OFFERS YOU GENUINE LONG LIFE CATERPILLAR PARTS

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YOUR CATERPILLAR DEALER

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COAL MINING

DECEMBER, 1956

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Handle more cars better—cost less to install and maintain. Foster stocks all Rail Sections 12# thru 175#, Switch Material and Track Accessories.

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FOR SALE

A Roberts & Schafer Super-Air flow Pneumatic Coal Cleaner, 6 ft. wide x 4'-6" long.

For 75 P. H. of 1¼ by ⅜" raw coal. Plant located ot Joanne Mine, Rachel, W. Va.

For further information write or call

JOANNE COAL CO.
1100 Union Trust Building
Pittsburgh, 19, Pa.

This ¾-yd. Bucyrus-Erie 22-B shovel is loading out coal in an open-pit mine near Clarion, Pa.

Here's a long term investment in cost-saving mechanization

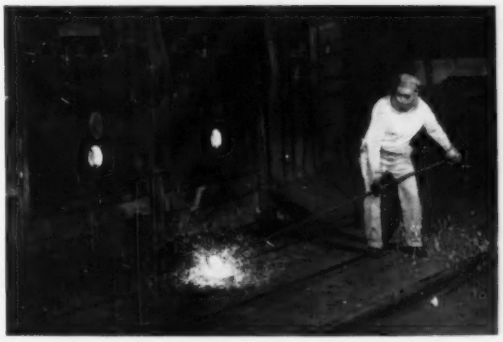
An important added advantage of mechanizing with Bucyrus-Erie shovels is the extra years of efficient service they perform. Here are just a few reasons why:

Bucyrus-Erie controls the quality of every component. Each lot of steel undergoes standard metallurgical tests to ascertain if our rigid specifications have been met and where conditions warrant it photomicrographs are made to permit a study of the grain structure. Bucyrus-Erie is one of the few companies that pours its own castings, in foundry facilities unsurpassed in the industry.

And just as important — each model is engineered completely new from the ground up. Existing machines are not "modified" simply to create a "new" model.

This attention to quality in design and manufacture results in machines requiring minimum upkeep and adds years of service life. Your Bucyrus-Erie distributor has complete details on machines from ⅜- to 4-cu. yd. For information on larger capacity loading and stripping shovels, write direct.

244E56C



Bonus Quality Bucyrus-Erie leaves nothing to chance. This sample furnace charge, like all others will be thoroughly tested to insure that its properties meet the highest specifications. It's just added insurance to guarantee top excavator performance.

BUCYRUS ERIE

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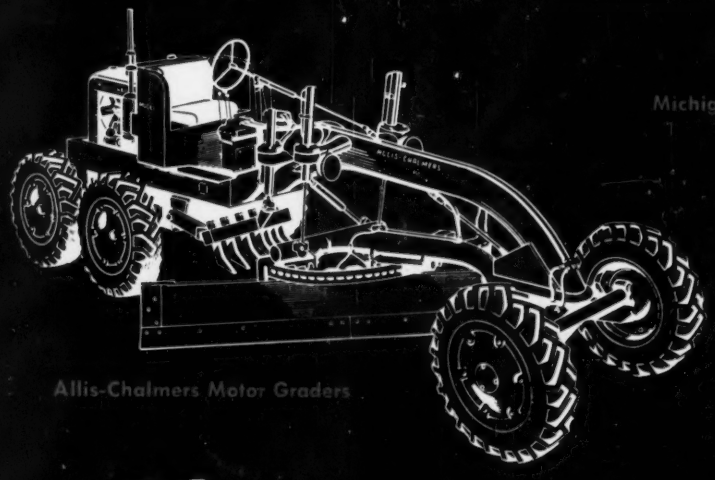
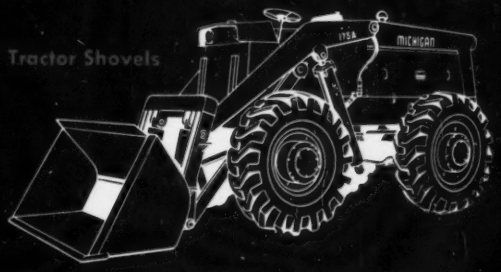
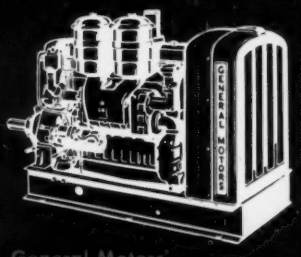


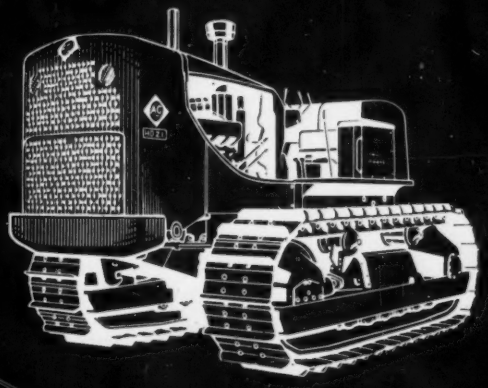
Allis-Chalmers Motor Graders

Michigan Tractor Shovels

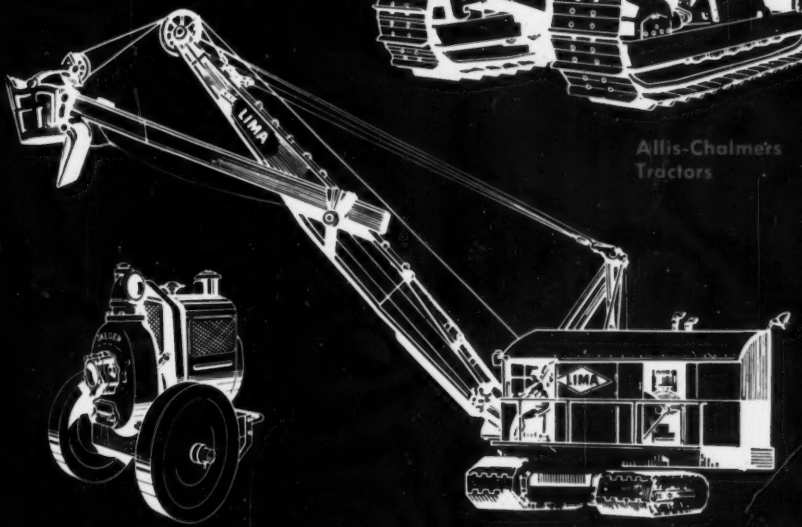




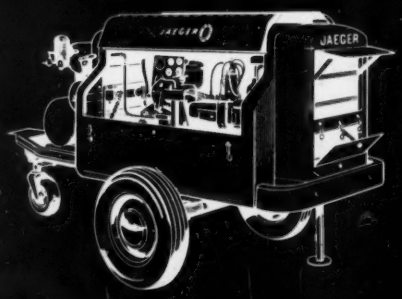
General Motors Diesel Engines



Allis-Chalmers Tractors



Lima Shovels, Cranes, Draglines



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